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Recovery Capital as a Mediator Between Stress and Drug-Taking Abstinence Self-Efficacy

Roxxanne Newman

RECOVERY CAPITAL AS A MEDIATOR BETWEEN STRESS AND DRUG-TAKING ABSTINENCE SELF-EFFICACY

By Roxxanne Newman

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Contents

Abstract

The present research was designed to address the gap in research regarding recovery capital, stress, and drug-taking abstinence self-efficacy. Prior research on recovery capital and stress has demonstrated that recovery capital buffers stress in recovery and enhances quality of life. Additionally, prior research has demonstrated that stress depletes self-control, and contributes to continued relapse behaviors, while self-efficacy represents the ability to abstain from drug use. The current research sought to examine the role of recovery capital as a mediator between stress and drug-taking abstinence self-efficacy. Participants in the community completed a survey packet that measure recovery capital, perceived stress, and drug-taking abstinence self-efficacy, as well as additional demographic and psychosocial background information. Results indicated that recovery capital mediated the relationship between stress and drug-taking self-efficacy. Additionally, results indicated significant relationships between the demographics, independent and dependent variables.

Keywords: recovery capital, stress, self-efficacy, recovery, substance misuse

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Glossary

Recovery: "a process of change through which people improve their health and wellness, live self-directed lives, and strive to reach their full potential" (NIH National Institutue on Drug Abuse, 2017).

Relapse: The return to the use of drugs and/or alcohol (NIH National Institute on Drug Abuse, 2019)

Recovery Capital (RC): The combination of internal and external resources an individual possesses in order to initiate and/or maintain recovery (Granfield & Cloud, 1999)

Drug-Taking Self-Efficacy (DTSE): Belief in one's ability to abstain from alcohol and/or drug use given a variety of situations of relapse triggers. (O' Sullivan, 2017)

Stigma: A process by which a certain social group in devalued and rejected based off of a health condition (Weiss, Ramakrishna, & Somma, 2006)

Introduction

Drug addiction[1] has recently been reassessed as a chronic medical condition characterized by the compulsive need for drugs despite negative consequences to the individual's life (National Institute on Drug Abuse, 2018). People who are addicted to drugs often experience deleterious costs to their relationships, health, and employment, as well as their emotional and mental well-being. According to the Substance Abuse and Mental Health Services Administration (2014), an estimated 21.6 million people are afflicted with a substance use disorder. In the U.S., we have been experiencing an opioid crisis. In 2017, more than 70,000 people died as the result of a drug overdose, with 47,600 of those deaths the result of opioids (National Institute on Drug Abuse, 2019). Specifically, in the year 2020, Rhode Island experienced the most accidental drug overdose deaths for the state since the start of the epidemic (State of Rhode Island Department of Health, n.d.) In 2017, in the United States, the estimated cost of opioid misuse and fatal overdose was estimated to be $1.02 trillion with costs to value of life lost, quality of life, healthcare, criminal justice, and lost productivity (Florence et al., 2021). In addition to the economic deficits, addiction causes people; more importantly it destroys lives and devastates families.

Yet in the midst of the devastation there is hope. In 2012, a national survey reported that roughly 23.5 million American adults reported being in recovery from drugs and/or alcohol (Feliz, 2012). According to the NIH National Institute on Drug Abuse, recovery is defined as "a process of change through which people improve their health and wellness, live self-directed lives, and strive to reach their full potential" (2017). Although, there are a substantial amount of people engaged in the recovery process, relapse continues to plague others.

[1] Alcohol will be conceptualized as a component of drug addiction in this study.

Research has sought to understand what variables contribute to both relapse and recovery. Studies have demonstrated the deleterious relationship between stress and substance abuse (Brewer et al., 1998; Kamimura et al., 2017; Moitra et al., 2013). Yet, in spite of the stress that most people in recovery are challenged by, there are individuals who have been able to cope with daily stressors and still continue to engage in the recovery process and abstain from drug seeking behavior. In 1999, Grandfield and Cloud introduced a concept known as recovery capital (RC), which is defined as the internal and external resources an individual has in order to help them obtain and maintain recovery. Grandfield and Cloud discuss RC in terms of tools that an individual has access to in order to abstain from alcohol or drug seeking behavior. As such, it is possible that RC contributes to one's ability to maintain a level of confidence in their ability to abstain from alcohol and/or drug use in spite of stress. No known research has examined the relationship between stress, RC, and alcohol and drug taking abstinence self-efficacy. The purpose of this paper is to examine the role of RC as a mediator between stress and drug-taking abstinence self-efficacy (DTSE).

Literature Review

Recovery Capital and Recovery

While multiple studies have examined the role of recovery capital (RC) as it relates to various constructs, each of these studies have uniquely conceptualized RC. Thus, recovery capital has yet to become a unified variable for quantification. More recent studies have identified and measured *external recovery capital* as quality and quantity of social supports, professional supports, religiousness, and 12-step affiliations (Laudat & White, 2008; O'Sullivan et al., 2017). Variables such as abstinence self-efficacy, self-stigma, self-beliefs, problem solving capacities, knowledge, and self-esteem have been considered forms of *internal recovery capital*

(O'Sullivan et al., 2017; White & Cloud, 2008). Some studies have included drug-taking abstinence self-efficacy, defined as one's perceived ability to abstain from alcohol or drug seeking behavior, as a general component of RC.

Recovery capital has been conceptualized as self-evaluations, self-beliefs, abstinence self-efficacy, professional supports, and peer supports. O'Sullivan et. al (2017) assessed recovery capital and quality of life (QOL) in a sample of participants who engaged in peer recovery support services to determine which recovery capital indicators related to QOL. Respondents completed surveys assessing quality of life, abstinence self-efficacy, self-stigma, professional support, and peer support. Results indicated low self-stigma was related to higher QOL, higher abstinence self-efficacy was related to higher QOL, high self- efficacy was related to low self-stigma.

Hennessy (2017) discusses recovery capital in the context of an ecological model. This is important, particularly given the multiple models of recovery capital alone, in understanding the multiple levels that recovery capital impacts. In her ecological model, Hennessy identifies three levels of recovery capital: individual, micro, and meso. Within the individual level, Hennessey identifies 4 sub-levels: physical, human, personal recovery and health, and growth. These sub-categories encompass variables such as material resources, self-esteem, mental health, and desire for personal growth. Within the individual and group levels are individual psychosocial factors and family/social supports for recovery. These levels refer to variables such as emotional support, willingness of close individuals to support and/or participate in treatment, and recovery outlets. At the meso-levels are cultural and community recovery. These levels include variables such as values, beliefs, community attitudes, availability of treatment, and addiction related stigma. For the purpose of this study, RC will be conceptualized as substance use and society,

psychological and physical health, community involvement, social supports, meaningful activities, housing and safety, risk taking, coping and life function, recovery experience, quality of life, and self-stigma.

Recovery is defined as **"**a process of change through which people improve their health and wellness, live self-directed lives, and strive to reach their full potential" (NIH National Institute on Drug Abuse, 2017). Multiple studies have examined the relationship between recovery capital and recovery. In particular, RC has been linked to quality of life (QOL). With the reasoning that as a result of drug and/or alcohol abuse QOL will be poor, and subsequently, through the process of recovery, QOL will be enhanced. Multiple studies have examined this relationship between recovery and QOL (Laudet et al., 2019, Kraemer et al. 2002). Laudet et al. (2019), interviewed people who use crack and/or heroin crack with severe use history. Participants reported QOL satisfaction, motivation, and sustained remission from active drug use during three separate periods. Results demonstrated that quality of life predicted sustained remission from drug use a year later, and this remission continued into year two. Kraemer et al. (2002) examined if a decrease in alcohol consumption was associate with score related to QOL. Two hundred and thirteen participants were screened using the Alcohol Use Disorder Identification Test (AUDIT) and quantity frequency (QF). Health-related QOL was assessed at baseline, 6 months, and 12 months using the Short Form 38-item and Inventory of Problems. Participants who reported a 30% decrease in alcohol consumption reported improvement in quality of life and had fewer adverse alcohol related incidences.

Stigma

Originating from the Greeks, stigma was a concept that was a developed referring to a bodily sign that was meant to expose something bad about a person's moral character (Goffman,

1986). Socially, people with substance use struggles are often viewed more negatively in terms of blame and dangerousness when compared to other mental health issues (Corrigan et al., 2009). Labeling theory proposes that once individuals have been labeled a deviant by society, they face new challenges from the reactions of others and negative stereotypes (Lemert, 1967). Glass et al. (2013) Found that the label of an alcoholic moderated the relationship between perceived alcohol stigma, social support, and persistent alcohol use with those having been labeled an alcoholic reporting more persistence alcohol use. Additionally, problems associated with being labeled can in term lead the individual to act out in the deviant behavior as a means of defense. Studies have demonstrated stigma has been found to undermine the recovery process (Corrigan, 2011) In particular, internalized self-stigma creates distress and affects self-esteem (Brohan, 2010). O'Sullivan (2017) examined self-stigma as a negative component of RC. Results indicated that self-stigma was negatively correlated with QOL, in as such the more self-stigma someone possesses the less quality of life. Bliuc et al., (2018) also examined amount of self-stigma as a component of RC. The study analyzed posts in an online recovery forum. Self-stigma was measured by creating a dictionary of stigma-related words. Specifically, any "first singular pronouns" (e.g., I, mine, and myself) were associated with internalized self-stigma. Results indicated the self-stigma was negatively correlated with negative emotion.

Stress

Lazarus and Folkman (1984) defined stress as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p. 19). While past research stress has attempted to capture specific aspects of the environment that may impact stress related to recovery from addiction, it does not present an ecological picture of the entire person-in-context.

Further, stress needs to be examined from a framework of experience, such as all of the components that are present in a person's environment and how these components interact with each other (e.g., Weinstein & Trickett, 2016). Stressors may evolve from various sources, particularly within recovery capital, such as unemployment, housing access, public and personal stigma, family dynamics, social support, personal mental and physical health, etc…

Recovery Capital

Laudet et al., (2006) examined the moderating effect of recovery capital in the relationship between stress and quality of life (QOL). Researchers hypothesized that RC would buffer stress, thus enhancing quality of life. Participants reported on substance dependence severity, clean time (abstinence from drug), amount of stress over the year, stressful life events, recovery support, social support, spirituality, life meaning, religious practices, 12-step affiliation, and quality of life satisfaction. Results indicated that social supports, spirituality, life meaning, religiousness, and 12-step affiliation significantly buffered stress and enhanced QOL. Additionally, social support, spirituality, religious activities, and life earning were significantly and positively correlated with length of recovery time. Essentially these findings imply that as recovery time progresses, RC is enhanced, and stress decreased.

Relapse

The National Institute on Drug Abuse defines relapse as *returning to the use of drugs after attempting to stop* (2018). It estimated that 40-60% of people will relapse after attempting to engage in the recovery process. In particular, stress has been linked to relapse behaviors (Brewer et al., 1998). Brewer et al. (1998) conducted a meta-analysis investigating predictors of continued drug use among opiate addicted drug users who had used either during or after treatment. The authors located 69 studies which met assessed opiate-addicted patients who had

received some kind of treatment, with continued opiate use during or after treatment. Results indicated 10 statistically significant relationships associated with continued drug use, of which one was high stress. Moitra et al. (2013) investigated the role of perceived stress and substance use among smokers who were participating in methadone treatment. Participants answered questions pertaining to their alcohol use, nicotine dependence, use of benzodiazepines, cocaine, opiates, and cannabis over the last 30 days, as well as perceived stress. Results indicated that higher perceived stress was positively associated with drinking, cocaine, benzodiazepines, and opiate use. Likewise, Kamimura et al. (2017) examined the prevalence of substance use and the association between substance use, perceived stress, and depression among English and Non-English-speaking patients at a free clinic in the Intermountain west. Participants answered questionnaires assessing their levels of perceived stress, alcohol use, and drug use. Results indicated alcohol problems were significantly related to higher levels of perceived stress. It is possible the relationship between stress and relapse behaviors is the result of the association between stress and the depletion of self-control. Stress is often associated with depletion of the ability to maintain self-control which is important component of resisting the urge to engage in substance abuse behaviors.

Self-Efficacy

Research has examined the relationship between stress and self-regulation/self-control (i.e., self-efficacy). Considering the ability to abstain from substance use would depend largely on the individuals' ability to exhibit self-control over the urge to engage in substance use behaviors, this relationship is important. While most research has examined the relationship between higher levels of self-control and less stress, some have sought to understand the reciprocal relationship of stress on self- control (Oaten & Chen, 2005., Park et al. , 2016) Self-

regulation (self-control) can be defined as *the process by which people adjust their emotions, thoughts, and behaviors* (Park et. al, 2016) There is evidence to suggest that stress consumes the ability to exhibit regulatory strength, and as a result, regulatory abilities begin to breakdown under stress (Baumeister et al., 1994). Park et al. (2016) conducted a survey assessing daily stressors and depletion of self- control. For 14 days, respondents answered two short surveys regarding well-being and experiences. Results indicated a reciprocal relationship in that daily stressors predicted a decline in the ability to maintain self-control, and a decline in self-control predicted an occurrence of more stressful events. Oaten & Cheng (2005) examined the role of academic stress on self-control and this relationship on regulatory behaviors. Students were assessed 4 weeks prior to the exam period in order to establish baseline. Then, student stress and various self-regulatory behaviors (i.e., cigarette smoking, alcohol consumption, emotional control etc.) were assessed during an exam period. Results indicated that regulatory behavior was impaired during the exam period when compared to baseline, thus indicating stress hindered their ability to engage in self-regulation.

Abstaining from Drug Use

Some studies have included drug-taking abstinence self-efficacy (DTSE), defined as one's perceived ability to abstain from alcohol or drug seeking behavior, as a general component of RC. Little to no research has examined the relationship that stress has on self-efficacy. Given the importance of the ability to maintain self-control, or to self-regulate, in order to abstain from drug taking behavior, self-control is closely related to one's perception of self-efficacy is abstaining from relapse behaviors. Studies have examined the role of self-efficacy and the ability to abstain from drug taking behavior. Bandura (1995) defined self-efficacy as "*one's capabilities to organize and execute courses of action required to manage prospective situations*" (pg. 2). In

regard to addiction treatment, Bandura (1992) proposed that a low sense of self-efficacy would likely increase vulnerability to relapse. Several studies have examined the role of self-efficacy and substance use behaviors (Gilbert & Kurz, 2018., Navid, 2016; Senbajo et al., 1997). Navid et al. (2016) examined self-efficacy among addicted men who were participating in either a therapeutic community, Narcotics Anonymous, or methadone treatment group. Participant's perception of ability to abstain from using drugs was assessed using the Drug Taking Self-Efficacy scale. Results indicated that men who were participating in Narcotics Anonymous, reported higher levels of self-efficacy than those who were participating in the therapeutic community or Methadone Maintenance Group. Another study examined self-efficacy among participants in a methadone program. Senbanjo et al. (2009) investigated measures of self-efficacy between participants in a methadone program who either abstained from heroin use or continued to use heroin despite being on the program. Results indicated that participants who continued to engage in heroin use reported lower coping self-efficacy than those who did not use heroin. While previous studies examined the role of self-efficacy in drug taking behavior, Gilbert and Kurz (2018) investigated the relationship between RC and self-efficacy. In this study, RC was conceptualized as social support, 12-step group affiliation, spirituality, and current financial situation. Participants responded to measures that assessed their perceptions of their ability to abstain from either drug or alcohol taking behavior, perceived social support, overall living and financial situation, affiliation with Alcoholic Anonymous, and spirituality. Results indicated that higher amounts of recovery capital positively contributed to participant's perceived ability to abstain from either alcohol or drug taking behavior, with spirituality and AA affiliation as significant predictors of alcohol abstinence self-efficacy, and social support as a significant predictors of drug abstinence self-efficacy.

The Present Study

Previous research has investigated the role of perceived stress and continued drug use (e.g., Kamimura et al., 2017), self-efficacy and the ability to abstain from alcohol and/or drug use (e.g., Senbajo et al, 1997), and recovery capital as a buffer for stress and QOL in persons in recovery (Laudet et al., 2006). There is no known research that has investigated the relationship between stress, DTSE, and RC. This study sought to address this gap in the literature by examining perceived stress among persons in recovery and their DTSE as a function of their recovery capital. Specifically, this research examined how recovery capital mediates the relationship between perceived stress and drug taking self-efficacy. The present study examined the following hypotheses:

I. I hypothesized that recovery capital will mediate the relationship between stress and alcohol/drug-taking abstinence self-efficacy, such that recovery capital will explain the relationship between stress and drug-taking abstinence self-efficacy.
    A. I hypothesized that stress will predict drug-taking abstinence self-efficacy only in the presence of recovery capital.
        1. I hypothesized a three-step predictive model among the variables of recovery capital, stress, and drug-taking abstinence self-efficacy.
            a. I hypothesized a negative relationship between recovery capital and stress, such that high levels of recovery capital will predict lower levels of stress.
            b. I hypothesized that a negative relationship between stress and drug-taking abstinence self-efficacy exist, such that

lower levels of perceived stress will predict increased alcohol/drug- taking abstinence self-efficacy.

c. I hypothesized a positive relationship between recovery capital and drug-taking abstinence self-efficacy, such that higher recovery capital will predict higher drug-taking abstinence self-efficacy.

Methods

Participants and Recruitment

The population of interest was the recovery community. Inclusion criteria included that participants self-identify as being in recovery from either drugs and/or alcohol. There was no requirement for length of time of recovery. Participants were 18 years of age or older and reported along the gender spectrum.

Recruitment consisted of convenience sampling and venue-based time-location sampling. Convenience sampling included social media (i.e., Facebook, Instagram, and Twitter). Participants who participated on social media were directed via a hyperlink to the online survey. Venue based time-location sampling included recruiting participants from the annual Rally for Recovery that was held Saturday, September 19th, 2020. Due to the Covd-19 pandemic, the Rally attendance was substantially lower than previous years. Approximately 300 people attended the rally. Covid-19 protocols (i.e., social distancing, sanitizing, mandatory mask wearing, temperature checks, and contact tracing) were strictly enforced.

Procedure

Participants who participated online were directed to the survey via hyperlink. The survey was administered using Qualtrics in order to ensure confidential data collection, as well

as easy transfer of data for analysis. Once the survey was completed, participants were directed to another hyperlink that they could use in order to be sent to another part of the survey that allowed them to enter their email address in order to receive a $5 Dunkin Donuts Card. The separate hyperlink to the email portion of the survey ensured that participants emails were not connected to their survey answers in order to establish confidentiality.

Participants at the Rally for Recovery were recruited by undergraduate and graduate research assistant from Rhode Island College in order to minimize potential interviewer bias (I have a strong presence in the Rhode Island recovery community, and thus, participants might be hesitant to answer truthfully). Research assistants were trained on protocols to ensure consistency in the administration of the survey, thus reducing random and systematic survey error. The research assistants approached guests of the Rally and asked if they wanted to participate in a study examining recovery capital. After being read the consent form, participants were handed the survey with a pen. After finishing the survey, the research assistant collected the survey and put it in a manilla envelope separate from the consent form in order to ensure confidentiality. Once completed, participants were handed a $5 Dunkin Donuts card as compensation for their participation in the study.

The survey was identical for both samples of participants. First, participants answered questions pertaining to demographics. Next, participants answered questions regarding their perceived stress. Next, participants answered questions regarding their DTSE given a variety of situations and emotional states. Next, participants answered questions assessing their quantity and quality of recovery capital. Next, participants answered questions assessing their perceived stigma. Lasty, participants answered questions assessing their quality of life.

Measures

Recovery Capital. Recovery Capital was defined as participants internal and external resources they can utilize in order to initiate and maintain recovery from drugs and/or alcohol. Recovery capital was measured using the Assessment of Recovery Captain Scale (ARC). Developed by Groshkiva, Best, and White (2012), and consisting of 50 items, the scale was designed to assess the amount of recovery capital and individual has. The 50 items are divided in to 10 subscales (5 items each) assessing the following domains: substance use and sobriety, global psychological health, global physical health, citizenship and community involvement, social support, meaningful activities, housing and safety, risk taking, coping and life functioning, and recovery experience. Sample 'items include such statements as "I cope well with everyday tasks", and "I feel safe and protected where I live". The scales will be modified to include a Likert-type scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) in order to strengthen variability. (Cronbach $\alpha = .96$)

Stigma. Stigma was measured using the Substance Abuse Self-Stigma Scale. Developed by Lumoa et al. (2012), and consisting of 40 items, the scale was designed to measure four areas of self-stigma (self-devaluation, fear of enacted stigma, stigma avoidance, and values disengagement). There are 8 self-devaluation items consisting of statements such as "I have the thought that I should be ashamed of myself." Items are rated on a Likert type scale ranging from 1 (never to almost never) to 5 (very often). There are 9 fear of enacted stigma items consisting of statements such as "People think I'm worthless if they know about my substance use history." Items are rated on a Likert type scale ranging from 1(few people [0-20 percent] to 5 (almost everyone [80-100 percent]). The stigma avoidance and values disengagement scales are combined to contain 40 items that contain items such as "Shame gets in the way of how I want to live my life," and "I do things that are good for me, even if I feel like I don't deserve it." Items

are rated on a Likert type scale ranging from 1 (never to almost never) to 5 (very often). The full scale revealed a Cronbach's alpha of .86.

Quality Of Life. Quality of life (QOL) was measured using the Flanagan Quality of Life Scale (QOLS). Initially developed by Flanagan (1978), the scale was modified by Burkhardt et al. (1989) to include 16 items. Participants rated their level of satisfaction on various life areas (i.e., material comfort, health, relationships, etc) on a Likert type scale ranging from 7 (delighted) to 1 (Terrible). (Cronbach $\alpha = .92$)

Perceived Stress. Perceived stress was defined as the degree to which participants perceived their environment and experiences as stressful during the last month. Perceived stress was assessed using the Perceived Stress Scale developed by Cohen et al. (1983)**.** The Perceived Stress Scale is a 10-item inventory that assess participant's levels of perceived stress over the last month. Items are rated on a Likert type scale ranging from 0 (Never) to 4 (Very Often). Sample items include "In the last month, how often have you been upset because of something that happened unexpectedly?", and "In the last month, how often have you felt nervous and stressed?" (Cronbach $\alpha = .89$)

Drug-Taking Abstinence Self-Efficacy. The dependent variable was the participant's rating of drug taking abstinence self-efficacy. Drug taking abstinence self-efficacy was defined as participant's perception of their ability to refrain from using substances in a variety of potential relapse situations. Drug taking abstinence self-efficacy was measured using the Drug-Taking Confidence Questionannire-8 (DTCQ-8). The DCTQ-8 is the shortened version of the original 50 item Drug-Taking Confidence Questionnaire developed by Annis and Martin (1985)**.** The DTCQ-8 assesses a participants' coping self-efficacy across 8 types of high-risk situations: (1) unpleasant emotions; (2) physical discomfort; (3) pleasant emotions; (4) testing personal

control; (5) urges and temptations to use; (6) conflict with others; (7) social pressure to use; and (8) pleasant time with others. The scale is a five-point Likert type scale that ranges from 0 (Not at All Confident) to 100 (Very Confident). (Cronbach $\alpha = .94$)

Demographics. Concluding the survey section, participants answered a number of demographics, to include age, gender, ethnicity, race, educational attainment, marital status, length of recovery, employment, and criminal justice involvement as demonstrated in Laudet & White (2008).

Results

The main goal of this study was to examine recovery capital as a mediator between stress and perceived ability to abstain from drug use (drug-taking self-efficacy). Specific demographic characteristics were also included in the model. Prior to conducting the mediation analysis, correlational and regression analysis were used to examine the relationships among predictor and outcome variables. Additionally, a t-test demonstrated there were no differences between the Rally for Recovery and online samples.

Descriptives

Sample. The sample was 28% male, 67% female, and 2% non-binary. Eighty eight percent identified as being white, 3.8% black, 73 % Non-Hispanic, and 5% Hispanic. The majority of participants (19%) ranged between ages 31-35 years of age. Length of recovery was 20% under six months, 16% 6-18months, 9% 18-26 months, and 60% over 3 years. The majority of participants (35%) reported having attended some college. Forty one percent were employed full time, 18% part time, and 10 % unable to work. Thirty five percent were single, 33% were married, and 25% were divorced. Thirty percent reported alcohol has their primary drug of

choice, 22% narcotics, and 17% cocaine. Thirty percent reported alcohol has their primary drug of choice, 22% narcotics, and 17% cocaine.

Demographics and Relationships with Independent and Dependent Variables

As seen in Table 1, a Pearson's Correlation was run to assess the relationship between the demographics, stigma, perceived stress, QOL, and drug-taking self-efficacy. There was a statistically significant, strong positive relationship between length of recovery and recovery capital $r = .57$, $p < .001$ and drug-taking self-efficacy $r = .55$, $p < .001$. There was a statistically strong, negative relationship with recovery capital and stigma $r = -.46$ and perceived stress $r = -.50$, $p < .001$.

A linear regression was run to assess the prediction of the RC on length of recovery, $F(1, 103) = 48.23$, $p < .001$ and RC accounted for 32% of the explained variability in length of recovery.

Testing the Hypotheses

Independent Variables. There were a few statistically significant relationships among independent variables. A Pearson's Correlation was run to assess the relationship between recovery capital, stigma, perceived stress, and quality of life. There was a statistically significant, strong negative relationship between recovery capital and stigma, $r = -.47$, $p < .001$ and perceived stress , $r = -.67$, $p < .001$indicating that those with more RC had less stigma and perceived stress. A statistically significant, strong positive relationship between stigma and perceived stress $r = .48$, $p < .001$ such that people who reported higher stigma also reported higher perceived stress.

Correlations. A Pearson's Correlation was run to assess the relationship between drug-taking self-efficacy, recovery capital, stigma, perceived stress, and quality of life. There was a statistically significant, strong positive relationship between drug-taking self-efficacy and

recovery capital, $r = .52$, $p < .001$ indicating that people who report more recovery capital have higher confidence in their ability to maintain their recovery, and statistically significant, strong negative relationship with stigma $r(105) = -.38$, $p < .001$ and perceived stress $r = -.40$, $p < .001$ with people have more drug-taking self-efficacy having less stigma and less stress.

Multiple Hierarchical Regression. Hierarchal multiple regression analyses were used to determine if the addition of recovery capital improved the prediction of DTSE over and above perceived stress. The prediction model included examination of the importance of (i) demographic variables in step one, and (ii) stress and recovery capital in step two. The full model of perceived stress, RC and DTSE was statistically significant, $R^2 = .26$, $F(1, 101) = 15.380$, $p < .001$; adjusted $R^2 = .25$. The addition of RC to the prediction of DTSE to a statistically significant increase in R^2 of .112, $F(1,102) = 18.618$, $p < .001$.

Mediation Analyses. Finally, in the mediation model, in Step 1 of the regression of perceived stress with drug-taking self-efficacy, ignoring the mediator, was significant, $b = -.75$, $t(105) = -4.36$, $p < .001$. Step 2 showed the regression of perceived stress on the mediator, recovery capital, was also significant, $b = -.60$, $t(105) = -9.04$, $p < .001$. Step 3 of the mediation process showed the mediator (recovery capital), controlling for perceived stress, was significant, $b = .93$, $t(105) = 3.95$, $p < .001$. A Sobel test was conducted and found full mediation in the model ($z = -3.61$, $p < .001$). It was found that recovery capital fully mediated the relationship between perceives stress and drug-taking self-efficacy.

Relationships among Subscales

As seen in Table 2, perceived stress, stigma, and DTSE all had statistically significantly, moderate to strong correlations with all of the access to recovery sub scales. There was a statistically significant, strong negative correlations between stress and social support $r = -.59$, p

< .001 and risk-taking r = -.57, p < .001. There was a statistically significant, strong positive correlations between DTSE and substance use and society r = .69, p < .001 and recovery experience r = .49, p < .001. Lastly, there was a statistically significant, strong negative relationship between stigma and housing and safety r = -.47, p < .001

Discussion

The primary focus of this study was to investigate the relationship between perceived stress, recovery capital (RC), and drug taking self-efficacy (DTSE). Key demographic variables (age, gender, length of recovery, and drug of choice) also were included in the predictive models. Recovery capital variables were substance use and sobriety, global psychological health, global physical health, citizenship and community involvement, social support, meaningful activities, housing and safety, risk taking, coping and life functioning, recovery experience, and stigma while the psychosocial variable were perceived stress and drug-taking self-efficacy. As a secondary focus, the relationship between the perceived stress and drug-taking self-efficacy; as well as the interrelationships among the independent and dependent variables separately were also assessed. Overall, the main results point to the importance of recovery capital and its importance on a person's perceived ability to maintain their recovery, as well as the negative effects of stigma on DTSE. Length of recovery played a major role in the recovery process.

As hypothesized, recovery capital was found to explain the relationship with perceived stress and DTSE. Respondents who reported less perceived stress also reported more DTSE and this relationship could be explained by the amount and quality of recovery capital. While previous studies have demonstrated the relationship between stress and recovery capital (DeGarm et al., 2018; Laudet et al, 2000), no known research as examined the relationship between recovery capital and DTSE. Additionally, while research has demonstrated the effects of

stress and self-efficacy in areas such as academia (Zajacova et al., 2005) and job burn out (Schwarzer & Hallum, 2008), there is little to no research that investigates stress and self-efficacy in substance misuse. These findings are the first in demonstrating not only a relationship between recovery capital and DTSE, but more importantly, that recovery capital partly explains the relationship between stress and DTSE.

Not surprisingly, there were strong correlations between the independent variables. Respondents who reported more RC also reported less stigma and less perceived stress. RC, particularly social supports, has been demonstrated to buffer stress with people who participate in recovery mutual aid groups reporting higher levels of support and less substance use and distress (Laudet et. al, 2000). Being able to turn to people who are experiencing the same struggles and triumphs that come with the recovery journey, offers people a sense of feeling not alone and may contribute to a sense of belonging offering a safe environment to realize stress. In regard to perceived stress, the relationship between perceived stress and the social support domain of the ARC were especially strong. Additionally, community engagement challenges stigma by the development of a positive social identity and pro-social community roles (Best, 2016). By becoming involved in a community, it is possible that a person begins to develop a positive identity outside of the negative attributes that normally encompass stigmatization.

In contrast, there was a strong positive relationship with stress and stigma with more perceived stress being associated with more stigma. Stigma has a deleterious effect on life opportunities such as employment, housing, and medical care (Link & Phelan, 2006). Creating barriers to essential life tasks such as employment can create stress by denying someone the ability to be able to provide for themselves or their family.

Particularly important were the relationships found between the RC, stress, stigma and DTSE. DTSE had a strong positive relationship with recovery with people who report more RC reporting a greater sense of ability to abstain from drug and/or alcohol use. DTSE is essential with a person's ability to maintain their recovery. Prior research has demonstrated that poor self-efficacy is associated with continued drug use (Senbanjo et al., 2009). If someone does not think they can abstain from drug/alcohol use during a variety of situations, then a sense of defeat and hopelessness could naturally lead them to abandon all hope for recovery. The Transactional Model of Stress asserts that a person's appraisal of a stressful situation and subsequent abilities to coping abilities will determine their level of stress (Straub, 2017). RC, specifically the subscales that focus on social support and coping, in essence might provide the ability to recognize that a situation, though stressful, is able to be effectively rectify the situation without returning to the use of drugs and/or alcohol. Consequently, people who reported more DTSE reported less stress and stigma which is not surprising with perceived stigma having been associated with low self-efficacy and poor coping (Kleim et al. 2009).

There were a few significant associations with length of recovery and the independent variable and dependent variables. Consistent with previous research, recovery capital was associated with length of recovery such that the more recovery capital a person reported the longer the amount of recovery. For instance, Rettie et al. (2019) reported that the Recovery Strength Questionnaire was able to moderately predict length of recovery. Additionally, Laudet & White (2008) demonstrated that among mostly inner-city ethnic minorities, recovery capital such as social reports, spirituality, life meaning and religiousness and 12-step affiliation were predictors of short-term recovery, with life meaning and 12-step affiliation associated with sustained recovery. Length of recovery was positively associated with drug-taking self-efficacy

with people reporting longer amounts of recovery time having greater self-efficacy in the ability to avoid drug and/or alcohol use. The importance of self-efficacy in behavior change has long been established (Stretcher et al., 1986) particularly with people who use substances (Diclemente, 1986). Perhaps, the more time that a person maintains their recovery, and the more difficult situations they are able to get through, improves their sense of self-efficacy in not having to use substances during various situations and emotional states.

Limitations of Study

There were several limitations to this study. First, in March of 2020, the Covid-19 pandemic created a worldwide emergency. Much of the United States was forced to implement safety protocols in order to slow the spread of the virus. In particular, Rhode Island shut down any non-essential businesses, and limited the guest capacity that events could host. During the summer months, a reopening strategy was implemented consisting of phases. In September 2020, RI was still in phase three which severely limited the amount of people that could attend the Recovery Rally. Additionally, people were extremely concerned with contracting and spreading Covid-19 in large crowds. As a result, data collection during the event was not as to be expected. Normally, this event is attended by an upwards of 8,000 people; with Rally for Recovery 2020 having possibly 300 to 500 attendees. Lastly, and more importantly, because of the additional amount of stress participants were experiencing as a result of the pandemic, the amount of variability in stress was weakened. Therefore, the results of the findings are enhanced demonstrating the importance of RC as a mediator between stress and DTSE. The Covid-19 pandemic made it more difficult to find the actual relationship between stress, RC, and DTSE, and the effects could be bigger.

Second, the use of non-probability sampling; specifically, venue-based time location sampling could have introduced bias as to the demographics of the sample. People attending the Rally for Recovery may have different subject variables than those people in recovery who do not attend the Rally for Recovery. Also, the people who would normally attend the event might not have been able to do so because of Covid-19 concerns, further reducing the amount of variability among participants. Future research could employ the use other forms of non-probability sampling to such as self-selection sampling, snowball sampling, or purposive sampling, in order to capture a variety of participants.

Third, the use of self-reports to assess the variables; specifically, perceptions of ability to abstain from drug-taking behavior. This population is particularly vulnerable to social desirability response. People in recovery are very reluctant to admit feeling vulnerable to potential relapse behaviors, and commonly overestimate their ability to abstain from drug seeking behavior. Most relapse behavior is impulsive, and therefore; respondents might not have been consciously aware of their vulnerability to relapse. Additionally, because of overconfidence, there was potential for a ceiling effect in the responses in the DCTQ-8. Future research could include a social desirability scale in the survey in order to assess the SDR of participants.

Conclusion

This study has important implications for the future in the field of recovery in terms of clinical assessments, public policy, advocacy, and recovery research. First, in clinical assessments it is imperative that clinicians utilize a strength-based approach in working with the substance abuse population. Clinicians can assess recovery capital and instruct clients on how to utilize their recovery capital strengths in the initiation and maintenance phases of their client's

recovery. Additionally, in evaluating areas of recovery capital that are weaker, clinicians can assist clients in addressing the gaps in recovery capital that may be contributing to relapse behaviors. Given the importance of RC in the reduction of stress, it is important for clinicians to assist clients' in building upon recovery capital in order to buffer stress, thus enhancing their perceived ability to refrain from drug taking behaviors.

In terms of public policy, funds for substance abuse treatment are annually allotted through federal and state agencies. In order to better assist people in the recovery process, as well as save tax payer money in the heavy burden of cost that is associated with substance abuse treatment, funds could be better directed to specific components of recovery capital that are better predictors of drug-taking abstinence ability.

Also, given the deleterious effects of stigma on the recovery process and DTSE, it is important that recovery advocacy groups and institutions that assist in the recovery process take an active lead in reducing stigma associated with substance misuse.Further examination into the importance of recovery capital and the recovery process is imperative. There is still no unified conception of what the exact component of RC are among research scientists. Research would benefit greatly on a more conceptualized idea of RC. Recovery capital components have been examined as internal (O'Sullivan et al., 2017; White & Cloud, 2008), or external (Laudat & White, 2008; O'Sullivan et al., 2017). Future studies should focus on the which of these two subgroups is most important for particular types of addictions (i.e., cocaine, opioid, etc), for racial, ethnic, and sexual minorities, and during each stage of the recovery process. Lastly, longitudinal research is needed to examine the recovery capital and its implications on the recovery process through the different stages.

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Appendices

Appendix A: Survey Layout & Informed Consent

Are you at least 18 years of age?

Yes

No

Do you identify as a person in recovery from alcohol and/or drugs?

Yes

No

CONSENT DOCUMENT
Rhode Island College

Recovery Capital, Stress, and Drug-Taking Abstinence Self-Efficacy

You are being asked to participate in a research study that is evaluating recovery capital, stress, and drug taking abstinence self-efficacy. Participation in the study is voluntary and it is anticipated that answering the survey will require 30 minutes of your time. Please read this form and ask any questions that you have before choosing whether to be in the study.

Roxxanne Newman, a graduate student in Psychology, is conducting this research in collaboration with the faculty advisor Dr. Traci Weinstein, a professor at Rhode Island College.

Why this Study is Being Done

We are conducting this study to examine recovery capital as it relates to stress and drug-taking abstinence self-efficacy.

What You Will Have to Do

If you choose to be in the study, we will ask you to:

- Complete a survey and demographic questions

Risks and Discomforts

You may find that parts of this survey are upsetting. There is potential to trigger upsetting thoughts and feelings. You can skip any questions you do not want to answer, and you can stop the interview at any time. There is a list of resources at the end of the survey you may contact if you feel as though you need to talk with someone.

Benefits of Being in the Study

Being in this study will not benefit you directly.

Compensation

As an incentive for you taking some time and fully completing the survey, you may enter your email in a lottery to win a $10 Dunkin Donut card. You must fully complete this survey and submit in order to receive the gift card. You do not have to answer every question in order to receive the gift card. If you are answering the survey via online, you must enter your email in order to receive the gift card. Your email will be collected through a separate link at the end of the survey, so that your answers to the survey will remain anonymous and will not be identified with your email address. If you change your mind, and want to stop the study, you cannot enter to win.

Deciding Whether to Be in the Study

Being in the study is your choice to make. Nobody can force you to be in the study. You can choose not to be in the study, and nobody will hold it against you. You can change your mind and quit the study at any time, and you do not have to give a reason. If you decide to quit later, nobody will hold it against you.

How Your Information will be Protected

Because this is a research study, results will be summarized across all participants and shared in reports that we publish and presentations that we give. Your name will not be used in any reports. We will take several steps to protect the information you give us so that you cannot be identified. Instead of using your name, your information will be given a code number. The information will be kept in a locked office file and seen only by myself and other researchers who work with us. The only time I would have to share information from the study is if it is subpoenaed by a court, or if you are suspected of harming yourself or others, then I would have to report it to the appropriate authorities. Also, if there are problems with the study, the records may be viewed by the Rhode Island College review board responsible for protecting the rights and safety of people who participate in research. The information will be kept for a minimum of three years after the study is over, after which it will be destroyed.

Who to Contact

You can ask any questions you have now. If you have any questions later, you can contact Dr. Traci Weinstein at tweinstein@ric.edu (401) 456-8585, Roxxanne Newman at rnewman_5434@email.ric.edu, (401) 403-4804.
If you think you were treated badly in this study, have complaints, or would like to talk to someone other than the researcher about your rights or safety as a research participant, please contact the IRB Chair at IRB@ric.edu.

I have read and understand the information above. I am choosing to be in the study "Perceptions of Fairness and Student Conduct Board". I can change my mind and quit at any time, and I don't have to give a reason. I have been given answers to the questions I asked, or I will contact the researcher with any questions that come up later. I am at least 18 years of age.

Print Name of Participant: _____

Signature of Participant: _____ Date: _____

Name of Researcher Obtaining Consent: _____

First, we are going to request some basic demographic information. Please answer each question

What is your age?	_____
What is your race?	_____
What is your ethnicity?	_____
Please indicate your current length of time in reovery	Under 6 months_____ 6 to 18 months_____ 18 to 36 months_____ Over 3 years_____
What is your gender?	Male _____ Female_____ Transgender_____ The gender I identify with is not indicated (please fill in the blank with the gender you identify with) _____
What is your relationship status?	Single, never married _____ Married or domestic partnership_____ Widowed_____ Divorced_____ Separated_____
What is your employment status?	Employed full time (37 or more hours per week) Employed part time (up to 37 hours per week) Self-employed_____ Out of work and looking for work_____ Out of work but not currently looking for work_____

	A homemaker_____ A student_____ Active Military_____ Veteran_____ Retired_____ Unable to work_____
What is the highest level of education you have completed?	1st to 8th grade_____ Some high school, no diploma_____ High school graduate or GED_____ Some college credit, no degree_____ Associates degree_____ Bachelor's degree_____ Master's degree_____ Professional degree_____ Doctorate degree_____ Trade/ technical/ vocational training _____
What is your household income? (If in a recovery house, or some other type of shared living, please just indicate your range of income)	Less than $20,000_____ $20,000 to $34,999_____ $35,000 to $49,999_____ $50,000 to $74, 999_____ $75,000 to $99,999_____ Over $100,000_____
What is your drug of choice?	Alcohol_____

	Marijuana_____ Cocaine_____ Heroin_____ Narcotics other than heroin (Fentanyl, Vicodin, Morphine, other pharmaceutical medications) _____ Methadone_____ Buprenorphine (Suboxone)_____ Benzodiazepines_____ Barbiturates_____ Hallucinogens_____ Synthetic drugs (e.g., synthetic cannabinoids such as "K2" and "synthetic cathinones such as "bath salts")_____ Inhalants_____ Steroids_____ Other_____
What is your second drug of choice?	Alcohol_____ Marijuana_____ Cocaine_____ Heroin_____ Narcotics other than heroin (Fentanyl, Vicodin, Morphine, other pharmaceutical medications) _____ Methadone_____ Buprenorphine (Suboxone)_____ Benzodiazepines_____ Barbiturates_____

	Hallucinogens_____ Synthetic drugs (e.g., synthetic cannabinoids such as “K2” and “synthetic cathinones such as “bath salts”)_____ Inhalants_____ Steroids_____ Other_____
What type of housing do you reside in?	Own my own home_____ Rent an apartment_____ Live with relatives/friend_____ Recovery Housing_____ Rehabilitation Center_____ Homeless_____
Are you currently involved in the criminal justice system?	Yes_____ No_____

In the present section, you will be presented with a series of statements assessing your stress over the last month. Please read each statement carefully and choose an answer.

Item	Never	Almost Never	Sometimes	Fairly Often	Very Often
1. In the last month, how often have you been upset because of something that happened unexpectedly?	1	2	3	4	5
2. In the last month, how often have you felt that you were unable to control the important things in your life?	1	2	3	4	5
3. In the last month, how often have you felt nervous and “stressed”?	1	2	3	4	5
4. In the last month, how often have you felt confident about your ability to handle your personal belongings?	1	2	3	4	5
5. In the last month, how often have you felt that things were going your way?	1	2	3	4	5
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	1	2	3	4	5
7. In the last month, how often have you been able to control irritations in your life?	1	2	3	4	5
8. In the last month, how often have you felt that you were on top of things?	1	2	3	4	5
9. In the last month, how often have you been angered because things were outside of your control?	1	2	3	4	5
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	1	2	3	4	5

In the present section you, you will be asked a series of questions regarding your perceived ability to abstain from drug and/or alcohol use over a variety of situations. Please read each statement carefully and choose an answer. Listed below are a number of situations or events in which some people experience and alcohol or drug problem.

Imagine yourself as you are right now in each of these situations. Indicate on the scale provided how confident you are that you will be able to resist the urge to drink heavily or use drugs in that situation.

Circle 100 if you are 100% confident right now that you could resist the urge to drink heavily and/or use drugs, 80 if you are 80% confident; 60 if you are 60& confident. If you are more unconfident that confident, circle 40 to indicate that you are only 40% confident that you could resist the urge to drink heavily; 20 for 20% confident; 0 if you have no confidence at all about the situation.

I would be able to resist the urge to drink heavily and/or use drugs.

Item	Not at all Confident					Very Confident
1. If I were angry at the way things had turned out.	0	20	40	60	80	100
2. If I had trouble sleeping.	0	20	40	60	80	100
3. If I remembered something good that had happened.	0	20	40	60	80	100
4. If I wanted to find out whether I could take a drink or a drug occasionally without getting hooked.	0	20	40	60	80	100
5. If I unexpectedly found some alcohol or drugs, or happened to see something that reminded me of drinking or drugging.	0	20	40	60	80	100
6. If the other people treated me unfairly or interfered with my plans.	0	20	40	60	80	100
7. If I were out with friends and they kept suggesting we go somewhere and drink and/or use drugs.	0	20	40	60	80	100
8. If I wanted to celebrate with a friend.	0	20	40	60	80	100

In the present section, you will read a series of statements pertaining to yourself and your recovery. You are to indicate the extent to which you either agree or disagree with each of the statements. Please read each statement carefully and choose an answer**.**

Item	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1. Having a sense of purpose in life is important to my recovery journey.	1	2	3	4	5
2. I am able to concentrate when I need to.	1	2	3	4	5
3. I am actively involved in leisure and sports activities.	1	2	3	4	5
4. I am coping with the stresses in my life.	1	2	3	4	5
5. I am currently completely sober.	1	2	3	4	5
6. I am free from worries about money.	1	2	3	4	5
7. I am actively engaged in efforts to improve myself (training, education and/or self-awareness).	1	2	3	4	5
8. I am happy dealing with a range of professional people.	1	2	3	4	5
9. I am happy with my personal life.	1	2	3	4	5
10. I am making good progress on my recovery journey.	1	2	3	4	5
11. I am proud of my home.	1	2	3	4	5
12. I am proud of the community I live in and feel part of it.	1	2	3	4	5
13. I am satisfied with my involvement with my family.	1	2	3	4	5

14. I cope well with everyday tasks.	1	2	3	4	5
15. I do not let other people down.	1	2	3	4	5
16. I am free of threat or harm when I am at home.	1	2	3	4	5
17. I am happy with my appearance.	1	2	3	4	5
18. I engage in activities and events that support my recovery.	1	2	3	4	5
19. I eat regularly and have a balanced diet.	1	2	3	4	5
20. I engage in activities that I find enjoyable and fulfilling.	1	2	3	4	5
21. I feel physically well enough to work.	1	2	3	4	5
22. I feel safe and protected where I live.	1	2	3	4	5
23. I feel that I am control of my substance use.	1	2	3	4	5
24. I feel that I am free to shape my own destiny.	1	2	3	4	5
25. I get lots of support from friends.	1	2	3	4	5
26. I get the emotional help and support I need from my family.	1	2	3	4	5
27. I have a special person that I can share my joys and sorrows with.	1	2	3	4	5
28. I have access to opportunities for career development (job opportunities, volunteering, or apprenticeship).	1	2	3	4	5
29. I have enough energy to complete the tasks I set myself.	1	2	3	4	5
30. I have had no ‘near things’ about relapsing.	1	2	3	4	5

31. I have had no recent periods of substance intoxication.	1	2	3	4	5
32. I have no problems getting around.	1	2	3	4	5
33. I have the personal resources I need to make decisions about my future.	1	2	3	4	5
34. I have the privacy I need.	1	2	3	4	5
35. I look after my health and wellbeing.	1	2	3	4	5
36. I make sure I do nothing that hurts or damages other people.	1	2	3	4	5
37. I meet all my obligations promptly.	1	2	3	4	5
38. I regard my life as challenging and fulfilling without the needs for using drugs or alcohol.	1	2	3	4	5
39. I sleep well most nights.	1	2	3	4	5
40. I take full responsibility for my actions.	1	2	3	4	5
41. It is important for me to be involved in activities that contribute to my community.	1	2	3	4	5
42. In general I am satisfied with my life.	1	2	3	4	5
43. It is important for me to do what I can to help other people.	1	2	3	4	5
44. It is important for me that I make a contribution to society.	1	2	3	4	5
45. My living space has helped to drive my recovery journey.	1	2	3	4	5
46. My personal identity does not revolve around drug use or drinking.	1	2	3	4	5

47. There are more important things to me in life than using substances.	1	2	3	4	5
48.What happens to me in the future mostly depends on me.	1	2	3	4	5
49. I have a network of people I can rely on to support my recovery.	1	2	3	4	5
50. When I think of the future I feel optimistic.	1	2	3	4	5

In the present section, you will read statements pertaining to yourself, as well as others in regard to your substance use. Please read each statement carefully and choose answer.

Item	Never	Almost Never	Sometimes	Often	Very often
I have the thought that a major reason for my problems with substances is my own poor character.	1	2	3	4	5
I have the thought that I should be ashamed of myself.	1	2	3	4	5
I have the thought that I deserve the bad things that have happened to me.	1	2	3	4	5
I have the thought that I can't be trusted.	1	2	3	4	5
I feel inferior to people who have never had a problem with substances.	1	2	3	4	5
I fell out of place in the world because of my problems with substances.	1	2	3	4	5
I have the thought that I've permanently screwed up my life by using drugs.	1	2	3	4	5
I feel ashamed of myself.	1	2	3	4	5

Item	No one	Few People	Some People	A lot of People	Everyone
People think I'm worthless if they know about my substance use history.	1	2	3	4	5
People around me will always suspect I have returned to using substances.	1	2	3	4	5
People without a substance use history could never really understand me.	1	2	3	4	5
A job interviewer wouldn't hire me if I mentioned my substance use, they would expect me to be weak-willed.	1	2	3	4	5
People would be scared of me if they knew about my substance abuse history.	1	2	3	4	5
If someone were to find out about my history of substance use, they would doubt my character.	1	2	3	4	5
People will think I have little talent or skill if they know about my substance history.	1	2	3	4	5
People think the bad things that have happened to me are my fault.	1	2	3	4	5

Item	Never	Almost Never	Sometimes	Often	Very Often
I would choose to avoid someone who seemed interested in my friendship if I knew they had never used substances.	1	2	3	4	5
I do things that are good for me, even if I feel like I don't deserve it.	1	2	3	4	5
If something is important to me, I keep doing it, even if I feel incompetent.	1	2	3	4	5
When I feel incompetent at something I want to do, I stop trying.	1	2	3	4	5
I am getting on with the business of living, no matter how guilty I feel.	1	2	3	4	5
I'm willing to be in situations where I might feel different from others.	1	2	3	4	5
I am open about my substance use history with most people.	1	2	3	4	5
I put a lot of effort into hiding my substance use history.	1	2	3	4	5
I avoid doing things where I would be blamed if it didn't work out.	1	2	3	4	5

I wouldn't try to fill roles that required a person of character.	1	2	3	4	5
Shame gets in the way of how I want to live my life.	1	2	3	4	5
I pursue important goals in life, even when I fear I might not follow through.	1	2	3	4	5
I can set a direction for my life even if I feel hopeless.	1	2	3	4	5
Even if I knew the employer didn't like to hire people in recovery, I would still apply for a job if it interested me.	1	2	3	4	5
I would lie to people in my life about my substance use if I were sure they would never find out.	1	2	3	4	5
I avoid situations where another person might have to depend on me.	1	2	3	4	5
I avoid situations that make me feel different.	1	2	3	4	5
I can't stand feeling like the bad things that happen to me are my fault.	1	2	3	4	5
I would willingly sacrifice important things in my life to feel like I fit in.	1	2	3	4	5

Blaming myself for my substance abuse history gets in the way of my success.	1	2	3	4	5
I can set a course in my life and stick to it, even when I feel like I'm a bad person.	1	2	3	4	5
If I didn't have a job, I would still look for one, even if it felt hopeless.	1	2	3	4	5
I would willingly sacrifice important life gals if that meant I could feel better about myself.	1	2	3	4	5

In the present section, you will read statements pertaining to your quality of life. Please read each statement carefully and choose an answer.

Item	Delighted	Pleased	Mostly Satisfied	Mixed	Mostly Dissatisfied	Unhappy	Terrible
Material comforts, home, food, conveniences, financial security	7	6	5	4	3	2	1
Health-being physically fit and vigorous.	7	6	5	4	3	2	1
Relationships with parents, siblings & other relatives-communicating, visiting, helping	7	6	5	4	3	2	1
Having and rearing children	7	6	5	4	3	2	1
Close relationships with spouse or significant other	7	6	5	4	3	2	1
Close friends	7	6	5	4	3	2	1
Helping and encouraging others, volunteering, giving advice.	7	6	5	4	3	2	1
Participating in organizations and public affairs.	7	6	5	4	3	2	1
Learning-attending school, improving understanding, getting	7	6	5	4	3	2	1

additional knowledge							
Understanding yourself- knowing your assets and limitations- knowing what life is about.	7	6	5	4	3	2	1
Work- job or in home	7	6	5	4	3	2	1
Expressing yourself creatively	7	6	5	4	3	2	1
Socializing- meeting other people, doing things, parties, etc.	7	6	5	4	3	2	1
Reading, listening to music, or observing entertainment.	7	6	5	4	3	2	1
Participating in active recreation.	7	6	5	4	3	2	1
Independence, doing for yourself.	7	6	5	4	3	2	1

As we stated in the informed consent, the purpose of this study was to examine recovery capital as it relates to stress and drug-taking abstinence self-efficacy. Specifically, we were interested in whether a person's quality and quantity of recovery capital weakens the relationship between stress and one's perception of their ability to abstain from drug and/or alcohol use in a variety of situations.

If any part of this study upset you, below is a list of resources that can be utilized:

U.S Substance Abuse and Mental Health Services Administration Helpline:
1-800-662-HELP (4357)

Rhode Island's Hope and Recovery Support Line
1-401-942-STOP (7867)

BHLink
1-401-414-LINK(5465)

or visit their 24 hour/7-day triage center located at:
975 Waterman Avenue
East Providence, RI 02914

Anchor Recovery Community Center
1-401-889-5770

or visit the center at:
1280 North Main Street
Providence, RI 02906

If you want to participate in a lottery to receive a $5 Dunkin Donuts gift card, you will need to input your email address to which the gift card will be sent. The Dunkin Donuts gift card will be sent to your email within 48 hours. Your email address will be sent to a protected file separate from your survey responses. The list of email addresses will be destroyed after the conclusion of the study.

Do you wish to receive a $5 Dunkin Donut card?

Yes

No

Please enter your email address in the space provided below

Figures

Figure 1: Demographics

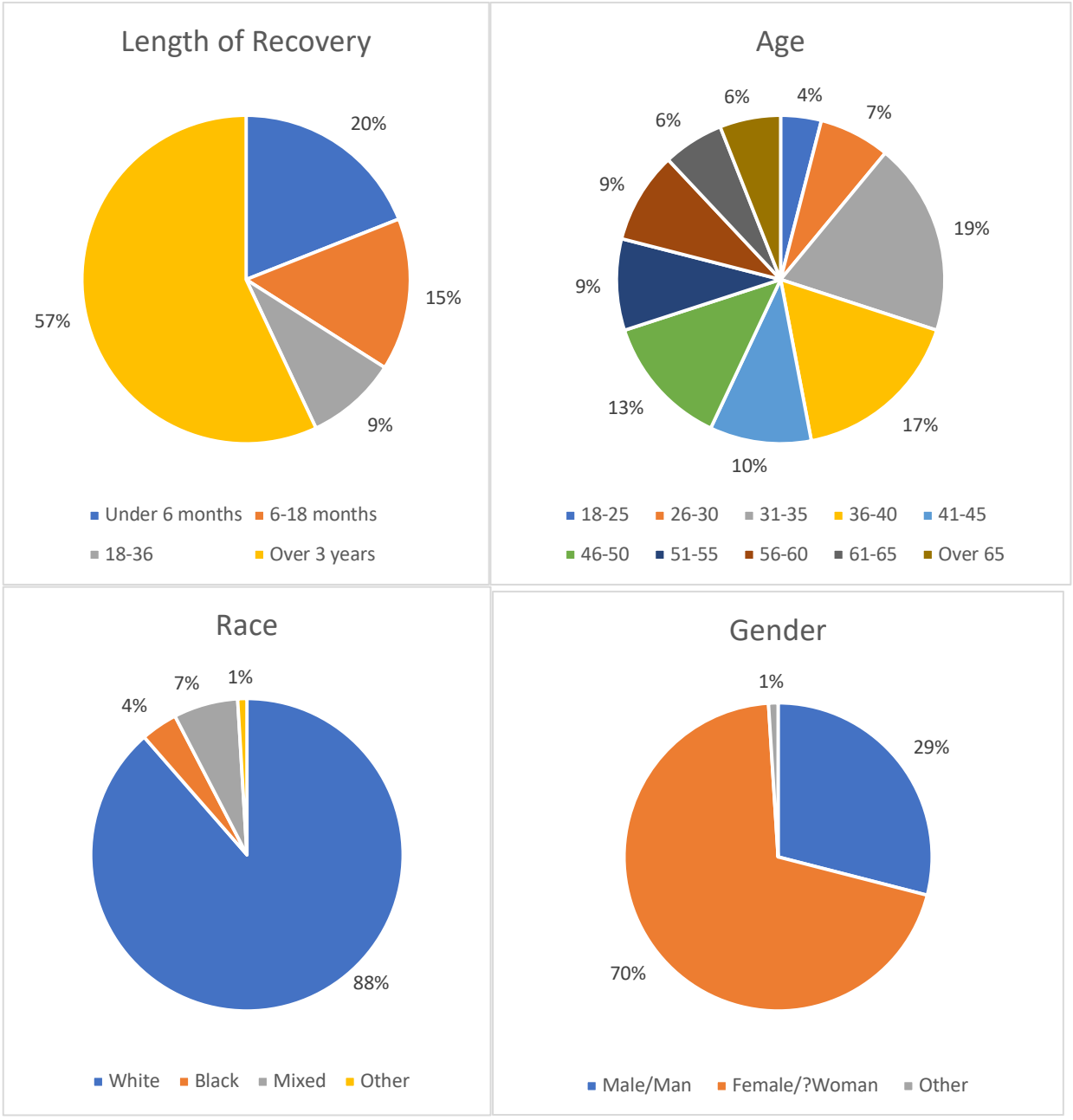
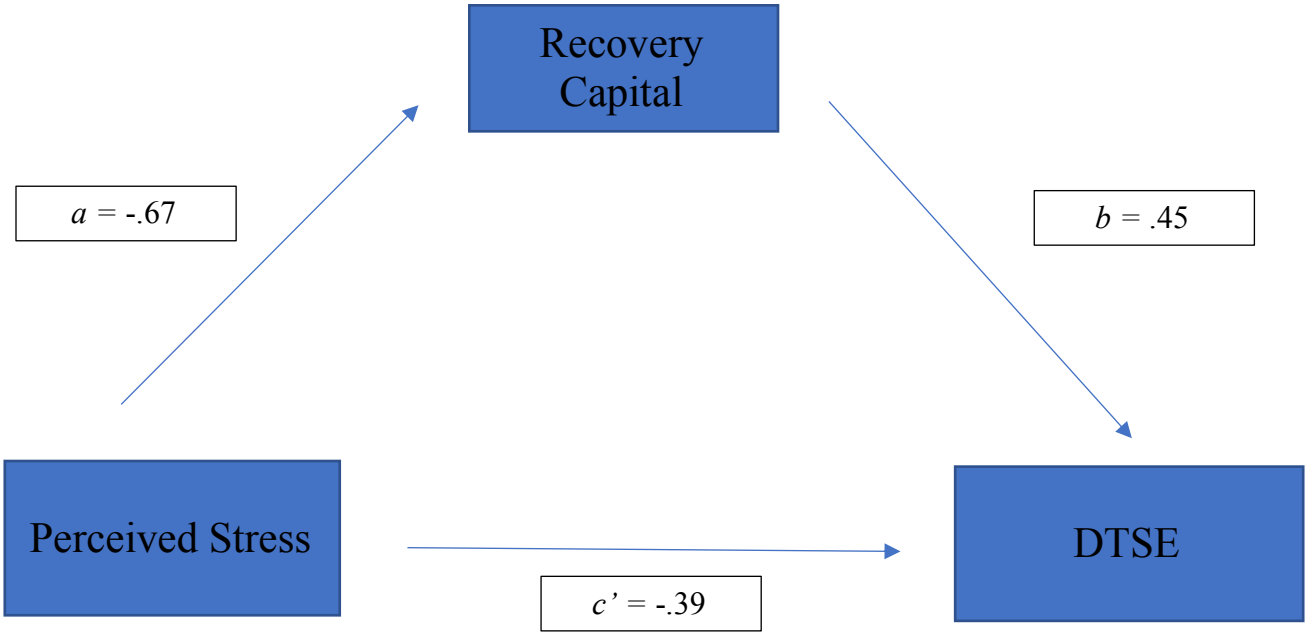


Figure 2: Mediation Model



Tables

Table 1: Correlation Table Demographics By Measure

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. ARC	--	**-.66****	**-.48****	**.52****	.03	**.25***	-.03	-.03	.14	**.57***	.04	**-.20***	.17	**.27****	-.03	.08	-.03
2. PSSQ		----	**.48****	**-.40****	-.06	**-.40****	.11	.00	-.15	**-.51****	.-.11	.17	-.14	**-.20***	.11	.03	-.00
3. SASS			----	**-.38****	-.11	**-.21***	.05	.04	-.05	**-.46****	-.07	**.20***	-.17	-.15	.19	-.16	.06
4. DTQ8				----	**-.13**	.14	-.01	-.04	.05	**.55****	-.11	-.16	.15	.26**	-.17	-.00	-.04
5. QOL					----	.03	.02	.06	**.23***	-.09	.07	-.08	.03	.16	.12	.10	-.01
6. Age						----	-.13	.03	.14	**.36****	**.37***	**.24***	.07	.14	.02	-.01	.14
7. Gender							----	.01	-.10	.06	.05	-.04	.10	-.11	-.01	.01	.02
8. Race								--	.18	.11	-.14	-.04	**-20***	-.18	.12	.17	-.04
9. Ethnicity									----	-.09	-.00	-.19	.05	-.02	.00	-.08	-.00
10.Length of Recovery										----	.18	-.14	**.27****	**.33****	-.14	.04	.07
11.Relationship Status											----	.07	-.08	-.02	.07	.05	.03
12. Employment												----	-.11	**-.37****	.10	.06	.10
13. Education													----	**.25****	-.18	.14	**.20***
14. Income														----	.08	.00	.88
15. First DOC															----	**.50****	.01
16. Second DOC																----	-.15
17. Criminal Justice Involvement																	----
Mean	4.04	2.69	2.74	5.15	3.95	5.11	.75	1.2	1.19	3.04	2.29	3.54	4.79	2.86	4.87	5.09	1.9
SD	.57	.63	.47	1.19	1.61	2.44	.56	.60	.64	1.22	1.30	3.44	2.02	1.68	4.61	4.36	.45

Note. N = 106 ARC (Assessment of Recovery Capital), PSSQ (Perceived Stress Scale), SASS (Self-Stigma in Substance Abuse), DTQ8 (Drug Taking Abstinence Self-Efficacy), QOL(Quality of Life) items above represent severity ratings *p < .05. **p < .01. Age (1=18-25; 2=26-20; 3=31-35; 4=36-40; 5=41-45; 6=46-50; 7=51-55; 8=56-60; 9=61-65; 10=65+); Gender (0=Man; 1=Woman; 2=Transgender; 3+Non-Binary; 4=Other); Race (1 = White; 2 = Black; 3 = Other); Ethnicity (1=Non-Hispanic; 2=Hispanic); Length of Recovery (1= <6 months; 2=6-18 months; 3=18-36 months; 4=over 3 years); Relationship Status (1 = Single; Never married; 2= Married or Domestic Partnership; 3 = Widowed; 4 = Divorced; 5 = Separated); Employment (1 = Full Time; 2 = Part Time; 3 = Self-Employed; 4 = Out of Work and Looking for Work; 5 = Out of work and Not Looking for Work; 6 = Homemaker; 7 = Student; 8 + Active Military; 9 = Veteran; 10 = Retired; 11 = Unable to Work); Education (1 = 1st to 8th Grade; 2 = Some High School; 3 = High School Graduate/GED; 4 = Some College; 5 = Associates; 6 = Bachelors; 7 = Masters; 8 = Professional Degree; 9 =Doctoral; 10 = Trade/Technical/Vocational); Income (1 = < $20K; 2 = $20k-$34,999; 3 = $35k-$49,999; 4 = $50k-$74,999; 5 = $75-$99,999; 6 = over $100K); First/Second DOC (1= Alcohol; 2 = Marijuana; 3 = Cocaine; 4 = Narcotics; 5 = Non-prescribed Suboxone; 6 = Benzodiazepines; 7 = Barbiturates; 8 = Hallucinogens; 9 = Synthetics; 10 = Inhalants; 11 Steroids; 12 = Non-prescribed methadone; 13 = Other); Criminal Justice Involvement (1 = yes; 2 = No)

Table 2: Correlation Table By Measure and Subscale

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. SASS	--	-.11	**-.38****	**.48****	**-.41****	**-.36****	-.31**	-.28**	-.41**	**-.39****	-.47**	**-.33****	-.40**	**.-.35****
2. QOL		----	-.13	-.06	-.03	-.01	-.02	-.01	.00	.05	.01	-.00	**.25***	.08
3. DTQ8			----	**-.40****	**.70****	**.40****	**.35****	**.35****	**.21***	**.44****	**.41****	**.47****	**.33****	**.49****
4. PSSQ				----	**-.56****	**-.57****	**-.54****	**-.39****	**-.59****	**-.51****	**-.54****	**-.57****	**-.54****	**-.43****
5. SUBARC1					----	**.58****	**.50****	**.52****	**.47****	**.57****	**.61****	**.61****	**.60****	**.65****
6. SUBARC2						----	**.64****	**.54****	**.61****	**.70****	**.67****	**.70****	**.70****	**.77****
7. SUBARC3							----	**.38****	**.58****	**.65****	**.50****	**.60****	**.66****	**.58****
8. SUBARC4								--	**.42****	**.57****	**.53****	**.61****	**.60****	**.60****
9. SUBARC5									----	**.60****	**.62****	**.58****	**.62****	**.50****
10.SUBARC6										----	**.60****	**.65****	**.65****	**.78****
11.SUBARC 7											----	**.66****	**.60****	**.67****
12. SUBARC8												----	**.61****	**.61****
13. SUBARC9													----	**.66***
14. SUBARC10														----
Mean	2.74	4.0	5.20	2.70	4.34	4.0	4.0	4.21	4.0	4.0	4.20	3.90	3.68	4.37
SD	.47	1.6	1.20	.63	.72	.65	.80	.65	.85	.74	.75	.71	.69	.59

Note. $N = 106$ ARC (Assessment of Recovery Capital), PSSQ (Perceived Stress Scale), SASS (Self-Stigma in Substance Abuse), DTQ8 (Drug Taking Abstinence Self-Efficacy), QOL(Quality of Life), SUBARC1 (Substance Use & Society), SUBARC2 (Global Psychological Health), SUBARC3 (Global Physical Health), SUBARC4 (Community Involvement), SUBARC5 (Social Support), SUBARC6 (Meaningful Activities), SUBARC7 (Housing & Safety), SUBARC8 (Risk Taking), SUBARC9 (Coping & Life Function), SUBARC10 (Recovery Experience) items above represent severity ratings *p < .05. **p< .01.

Table 3: Recovery Capital as a Predictor of Stress

Predicting Perceived Stress

Step/Variable	β	R^2_{change}	F_{change}
Model 1			
1. Demographic Variables		.32	15.38***
Age	.02		
Gender	.10		
Length of Recovery	.05		
2. Recovery Capital		.55	29.02***
	.10		
R^2_{total} = .55, $F(4,100)$ = 28.92***			

Note.. R^2_{change} = the percentage of variance accounted for by variables when entered into the regression equation at that step; F_{change} = F value associated with R^2_{change} at that step; R^2_{total} = the total amount of variance predicted jointly by all of the independent variables entered into the regression equation.

***$p < .001$

Table 4: Results of Hierarchal Regression Analyses for Recovery Capital and DTSE

Predicting Drug Taking Self-Efficacy

Step/Variable	β	R^2_{change}	F_{change}
Model 1			
1. Demographic Variables		.28	12.25***
Age	-.01		
Gender	-.02		
Length of Recovery	.42***		
2. Stress		.03	4.42**
	-.39**		
R^2_{total} = .31, F(4,101) = 10.61***			
Model 2			
3. Demographic Variables		.28	12.53***
Age	-.00		
Gender	-.05		
Length of Recovery	.39***		
4. Recovery Capital		.05	6.83**
	.53**		
R^2_{total} = .33, F(4,101) = 11.66***			

Note.. R^2_{change} = the percentage of variance accounted for by variables when entered into the regression equation at that step; F_{change} = F value associated with R^2_{change} at that step; R^2_{total} = the total amount of variance predicted jointly by all of the independent variables entered into the regression equation.

**$p < .01$, ***$p < .001$